

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

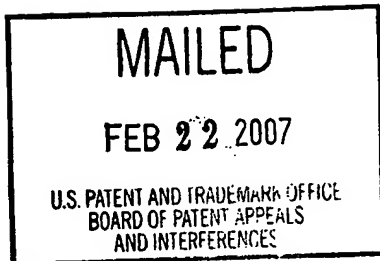
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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* ROBERT E. THOMPSON, JOSHUA J. KIMMEL,  
BRIAN POPOVITS, and PHUONG T. NGUYEN

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Appeal No. 2006-1430  
Application No. 10/005,484  
Technology Center 3700

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Before TERRY J. OWENS, ANITA PELLMAN GROSS, and JENNIFER D. BAHR, *Administrative Patent Judges*.

BAHR, *Administrative Patent Judge*.

DECISION ON APPEAL

Robert E. Thompson et al. (Appellants) appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 23-25, 29-38, 42, 44-47, and 50-59. Claims 1-22, 26-28, 39-41, 48, and 49 have been canceled. Claim 43 is still pending but has not been rejected<sup>1</sup> and thus is not involved in this appeal. We have jurisdiction over this appeal under 35 U.S.C. § 6.

We AFFIRM.

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<sup>1</sup> Although the Final Rejection (mailed May 26, 2004) states on page 1 that claim 43 is rejected, there is no rejection of claim 43 in the Final Rejection.

## THE INVENTION

Appellants' invention is a media control valve used to control flow of media into a fluid stream to treat a surface (Specification 1). The valve includes a body 20 having a media inlet 22 and a media outlet 24, a sleeve 32 positioned within the body and having a media opening 34, and a plunger 30 positioned within the body and movable to assume all positions between a fully open position and a fully closed position. In the fully closed position, the plunger completely blocks the media opening; in the fully open position, the plunger does not obstruct any of the media opening; and, in positions between the fully closed and fully open positions, the plunger partially obstructs the media opening. Independent claim 23 is representative of Appellants' invention and reads as follows:

23. A media control valve, comprising:

a body having a media inlet and a media outlet;

a flow path within the body including the media inlet and the media outlet;

an air-actuated closing member positioned within the body and constructed and arranged to provide all metering positions from a fully closed position to a fully open position.

### THE EVIDENCE

The Examiner relies upon the following as evidence of unpatentability:

Schmidt	US 3,476,440	Nov. 04, 1969
Bey	US 4,335,744	Jun. 22, 1982
Shank	US 5,542,873	Aug. 06, 1996
Evans	US 5,810,045	Sep. 22, 1998

### THE REJECTIONS

Appellants seek review of the Examiner's rejections of claims 23-25, 31, 32, 42, 44-47, 50, 53, 54, 56, 58, and 59 under 35 U.S.C. § 102(b) as being anticipated by Evans, claims 24, 25, 29, 31-38, 42, 44-47, 56, 58, and 59 under 35 U.S.C. § 103(a) as being unpatentable over Shank in view of Schmidt or Evans, and claims 30, 51, 52, 55, and 57 under 35 U.S.C. § 103(a) as being unpatentable over Shank in view of Schmidt or Evans and further in view of Bey.

The Examiner provides reasons in support of the rejections in the Examiner's Answer (mailed September 2, 2005). Appellants present opposing arguments in the Brief (filed June 2, 2005) and Reply Brief (filed November 7, 2005).

### OPINION

#### ***The anticipation rejection based on Evans***

Appellants purport to argue each of the independent claims 23, 24, and 45 separately (Br. 5), but Appellants' argument is the same with respect to

each of the independent claims. Specifically, Appellants argue that Evans' valve is not "constructed and arranged to provide all metering positions from a fully closed position to a fully open position" as required in each of the independent claims (Br. 6-8). Accordingly, the sole issue involved in the appeal of the anticipation rejection is whether Evans meets this limitation.

Evans' valve 56, like Appellants' valve, is used in a system for introducing particulate materials into high pressure air streams to, for example, sandblast surfaces (col. 1, ll. 7-15). See Evans' Fig. 1. Evans' valve 56 is also constructed very much like Appellants' valve. Specifically, Evans' valve includes a body 88 having a particulate material receiving opening 90 in fluid communication with a particle entrainment gas flow tube 92, a sleeve 97 positioned in the body, a media opening 97a in the sleeve, and a metering piston 94. Metering piston 94 is movably positioned within the body and rigidly attached to a drive piston 100 having a lower surface 106 in fluid communication with air pressure, depicted by flow arrow 113, from an air pressure source (col. 10, ll. 6-9). According to Evans, the high pressure air 113 has a pressure sufficient to "quickly force" drive piston 100 up to the top 109 of the drive piston chamber 101 (col. 10, ll. 18-23) and, hence, the metering piston 94 away from gas flow tube 92 to open the valve 56. The drive piston 100 and metering piston 94 are quickly moved back toward the gas flow tube 92 to close the valve by spring 115, by other high pressure air 113', or both (col. 10, l. 24 to col. 11, l. 6). An adjustment nut, depicted at 123', on threaded bolt 123 provides a means for defining the height of the

stroke of drive piston 100 as it nears the top 109 of the drive chamber 101 (col. 13, ll. 22-26).

Appellants argue, in effect, that the drive and metering pistons of Evans are not constructed and arranged to provide all metering positions from fully closed to fully open because the burst of air pressure 113 *quickly* moves the drive piston 100 to the top of the drive chamber 101 and the spring 115 and/or air pressure 113' *quickly* moves the piston back to the bottom of the drive chamber. Consequently, according to Appellants, Evans' pistons only provide fully opened and fully closed metering positions; "[t]here is no provision in Evans for controlling the degree to which the valve is open" (Br. 7).

Appellants' argument is unsound for two reasons. First, Evans' adjustment nut and bolt 123 provide a means for controlling the degree to which the valve is open, as it defines the height of the stroke of the drive piston 100 and, hence, the attached metering piston 94. Second, while Evans discloses an arrangement wherein the air pressure 113 and the opposing force provided by the spring 115 and/or the air pressure 113' are balanced relative to one another so that the drive piston 100 is quickly moved from the bottom of the drive chamber (the fully closed position) to the top of its stroke, Evans' valve also is fully capable, without modification, of being supplied with a selectively variable air pressure 113 that moves the drive piston to any position short of the stroke height defined by the adjustment nut and bolt.

We thus conclude that Evans' valve is constructed and arranged to provide all metering positions from a fully closed position to a fully opened position. We sustain the Examiner's rejection of claims 23-25, 31, 32, 42, 44-47, 50, 53, 54, 56, 58, and 59 as being anticipated by Evans.

*The obviousness rejections*

Shank describes a media valve including an inlet cone 61 and vertical media passage 63 in valve body 40, a control sleeve provided with spaced orifices 56, and a valve stem 45 attached to a piston 46. The lower surface 49 of piston 46 is in fluid communication, via pressure supply tube 50, with air pressure. The supplied air pressure moves the piston 46 and attached valve stem 45 upward and out of communication with media passage 63. A biasing spring 72 returns valve stem 45 to the closed position obstructing media passage 63 when the air pressure is reduced and bled through member 71. Compressed air can be supplied to the top surface 55 of piston 46 to return valve stem 45, either as an alternative to or in combination with the biasing spring 72. Col. 7, ll. 48-58.

Schmidt discloses a valve V very similar to that of Evans. Specifically, Schmidt's valve includes a body 60 having a media inlet tube 61a and an air flow tube 63 and has a spring 66 and a valve element 65 attached to a piston 70. Air pressure supplied to the lower surface 70b of the piston 70 via connecting pressure tube 75 moves valve element 65 to the open position. Spring 66 resists movement of valve element 65 to the open

position and returns valve element 65 to the closed position when air pressure on piston 70 is reduced or eliminated. Col. 3, ll. 30-48 and 62-71. A threaded shaft 80 and rotatable wheel 82 provide an adjustable stop to adjust the extent of movement of piston 70 and thus the extent of the opening of valve element 65 (col. 3, l. 74 to col. 4, l. 5).

The Examiner finds that Shank discloses all the features of independent claims 24 and 45 except the plunger, piston and sleeve being constructed and arranged to provide all metering positions from a fully closed position to a fully open position (Answer 7). The Examiner's position appears to be that it would have been obvious to provide adjustment means for adjusting the extent of movement of Shank's valve stem 45, as taught by Schmidt or Evans, to regulate the flow of media through the valve (Answer 7-8 and 16).

Appellants' argument is the same with respect to each of the claims rejected as being unpatentable over Shank in view of Schmidt or Evans. Specifically, Appellants argue that the applied references provide no suggestion to combine the threaded adjustment approach of Schmidt (or Evans) with the on/off valve of Shank and that, even if combined, the resulting valve would still not be constructed and arranged to provide all metering positions from a fully closed position to a fully open position (Br. 10-11).

Like Evans' and Schmidt's valves, Shank's valve is fully capable, without modification, of being supplied with a selectively variable air pressure that is sufficient, when applied against the opposing force of the spring or opposing air pressure, to move the piston and valve stem to any position up to and including the fully closed position. We thus conclude that Shank, like Evans and Schmidt, is constructed and arranged to provide all metering positions from a fully closed position to a fully open position, as called for in claims 24 and 45, even without the modification proposed by the Examiner.

Moreover, Appellants' argument that there would have been no reasonable expectation of success in providing a threaded stroke length adjustment in Shank's valve because there is nothing to suggest that the threaded adjustment of Schmidt or Evans would or could work in the on/off valve of Shank (Br. 10) is without merit. Both Schmidt and Evans disclose supplying air pressure to move the piston and valve element or metering piston from a closed position to an open position and thus describe on/off valves like Shank. Such similarity in the structure and operation of the valves of the three applied references would have given the skilled artisan a very reasonable expectation of success in providing a threaded stroke length adjustment in Shank's valve. The motivation to do so would have been to control the extent of opening of the valve to meter the flow of media.

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For the reasons set forth above, we sustain the rejection of claims 24, 25, 29, 31-38, 42, 44-47, 56, 58, and 59 as being unpatentable over Shank in view of Schmidt or Evans.

We also sustain the rejection of claims 30, 51, 52, 55, and 57 as being unpatentable over Shank in view of Schmidt or Evans and further in view of Bey as Appellants have not challenged this rejection with any reasonable specificity apart from the rejection based on Shank in view of Schmidt or Evans (*see In re Nielson*, 816 F.2d 1567, 1572, 2USPQ2d 1525, 1528 (Fed. Cir. 1987)).

#### SUMMARY

The decision of the Examiner to reject claims 23-25, 29-38, 42, 44-47 and 50-59 is AFFIRMED. The Examiner should clarify the status of claim 43 upon return of the application to the Technology Center.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a). *See* 37 CFR § 1.136(a)(1)(iv).

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AFFIRMED

*Terry J. Owens*  
TERRY J. OWENS

Administrative Patent Judge

Anita Pellman Gross

ANITA PELLMAN GROSS

Administrative Patent Judge

## BOARD OF PATENT

## APPEALS

AND

## INTERFERENCES

Jennifer D. Bair  
JENNIFER D. BAIR

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## Administrative Patent Judge

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